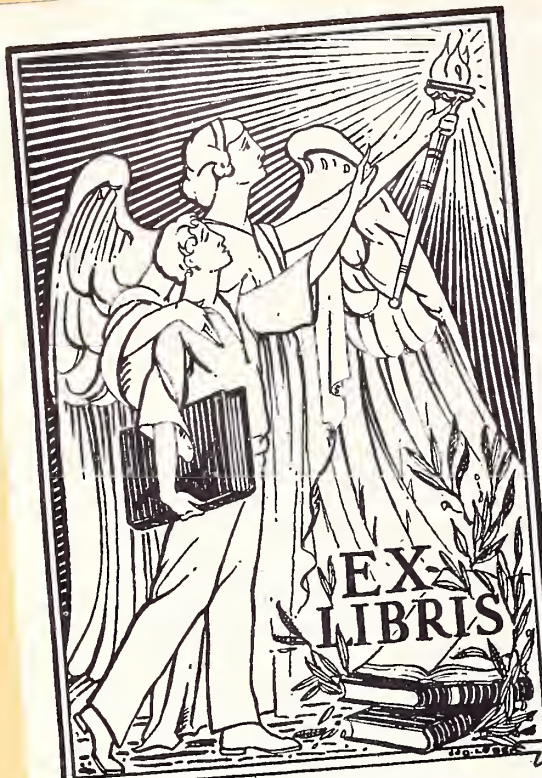


A PROVISIONAL BIBLIOGRAPHY ON TACTILE DISPLAYS

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Issued by IRIS
American Foundation for the Blind, Inc.
15 West 16th Street, New York, N.Y. 10011
November 1969

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EDITOR'S NOTE

The following pages contain another in the series of provisional bibliographies which we are privileged to issue in the field of sensory research related to sensory impairment, and with special reference to the blind and severely visually impaired.

The bibliography was prepared for us by Dr. James C. Bliss, Head, Bioinformation Systems Group, Engineering Techniques Laboratory, Stanford Research Institute, Menlo Park, California.

Prepublication copies of this bibliography were distributed to the participants at a conference on tactile displays held at the Stanford Research Institute on 2/4 April 1969. That conference, and this bibliography, share the important characteristic of opening a relatively new field of inquiry, that of the interrelations among bioengineering, psychophysiology, and neurophysiology when attention is directed to the processes involved in information transfer across the skin. For this reason, the present bibliography continues the "provisional" nature of this series, and we seriously invite suggestions for changes, additions, or deletions from readers and users.

Readers may also be interested in knowing that this is the first bibliography to be prepared from punched card input to a computer program designed to prepare master pages for photo-offset reproduction. The debugging of the program has been completed, and we believe that the costs of printing bibliographies in this way will not exceed--and may be less than--preparation of master copy on a typewriter by a human. Those familiar with such programs will immediately appreciate the ease and great accuracy of preparing revisions of the bibliography; and the possibilities for automatic retrieval of coded information on the punched cards or stored data file in the computer. We intend to explore these possibilities as time and funds permit.

The highly innovative nature of this bibliography, on both counts, underscores our desire for reaction from you, the reader and user of this document. We welcome your comments, negative or positive.



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- BECKER, E. M., AND CONE, R. A. 'LIGHT-STIMULATED ELECTRICAL RESPONSES FROM SKIN,' SCIENCE, 154(3752): 1051-53 (NOVEMBER, 1966).
- MIREL, ELIZABETH. 'SEES WITH FINGERS,' SCIENCE NEWS LETTER, 85(7): 7 (JANUARY, 1964).
- NOVOMEISKY, A. S. 'ON THE NATURE OF SKIN-OPTICAL FEELING IN MAN,' VOPROSY PSIKHOLOGII, : 99-117 (1963-1965),
- NYUBERG, N. D. 'SIGHT IN THE FINGERS, THE PHENOMENON OF ROSA KULESHOVA,' (5): 61-7 (NOVEMBER, 5, 1964).
- ROMAINS, J. EYELESS SIGHT, A STUDY OF EXTRARETINAL VISION AND THE PAROPTIC. NEW YORK: PUTNAM, 1924.
- ROSENFELD, ALBERT, 'SEEING COLOR WITH THE FINGERS,' LIFE MAGAZINE, 56: 101-113 (JUNE 12, 1964).
- YOUTZ, R. P. THE CASE FOR SKIN SENSITIVITY TO COLOR: WITH A TESTABLE EXPLANATORY HYPOTHESIS. SUMMARY OF REPORT. PSYCHONOMIC SOCIETY MEETING, NIAGARA FALLS, ONTARIO (1964).

SYMPOSIA AND REVIEWS

- BLISS, J. C. 'SENSORY AIDS FOR THE BLIND,' IN MCGRAW-HILL YEARBOOK SCIENCE AND TECHNOLOGY. NEW YORK: MCGRAW-HILL, 1966. PP. 357-60.
- CRAWFORD, B. M., ET AL. THE NATURE AND CAPABILITIES OF THE CUTANEOUS SENSES, AIR FORCE SYSTEMS COMMAND, WRIGHT-PATTERSON AFB, OHIO, AD643 266 (JULY, 1966).
- HAWKES, G. R. (ED.) SYMPOSIUM ON CUTANEOUS SENSITIVITY. PSYCHOPHYSIOLOGICAL STUDIES. USAMRL PROJECT NO. 6X95-25-001, REPORT NO. 424 (FEBRUARY 11-13, 1960).
- KLEIN, S. 'BEYOND THE STICK AND THE DOT,' MACHINE DESIGN, 19 (FEBRUARY, 1968).
- MOORE, T. J. A SELECTIVE REVIEW OF THE LITERATURE ON TACTILE SENSITIVITY--1940-65, N67-11922, AD 638 718 (APRIL, 1966).

NAFE, J.P. AND KENSHALO, D.R., 'SOMESTHETIC SENSES,' ANNUAL REVIEW OF PSYCHOLOGY, 13: 201-224 (1962).

SHERRICK, C. E., 'SOMESTHETIC SENSES,' ANNUAL REVIEW OF PSYCHOLOGY, 17: 309-36 (1966).

SHRAGER, P. G., AND SUSSKIND, C. 'ELECTRONICS AND THE BLIND,' ADVANCES IN ELECTRON PHYSICS, 20: 261-301 (1964).

TAUB, ARTHUR. 'CONTROL OF SENSATION FROM THE SKIN,' SECTION 5 OF BIOLOGICAL CONTROL SYSTEMS, A CRITICAL REVIEW AND EVALUATION. CAMBRIDGE, MASS.: BIOSYSTEMS, INC, JANUARY 31, 1966.

PROCEEDINGS OF THE CONFERENCE OF MOBILITY REHABILITATION SPECIALISTS, J.W. LINSNER (ED.), NEW YORK: AMERICAN FOUNDATION FOR THE BLIND, 1962.

PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON SENSORY DEVICES FOR THE BLIND, RICHARD DUFTON (ED.), LONDON: ST. DUNSTONS, 1966.

PROCEEDINGS OF THE INTERNATIONAL CONGRESS ON TECHNOLOGY AND BLINDNESS, L. L. CLARK (ED.), NEW YORK: AMERICAN FOUNDATION FOR THE BLIND, 1963.

PROCEEDINGS OF THE INTERNATIONAL SYMPOSIUM ON THE MECHANISMS OF CUTANEOUS SENSITIVITY, D. KENSHALO (ED.), SPRINGFIELD, ILL.: CHARLES C. THOMAS, 1967.

PROCEEDINGS OF THE ROTTERDAM MOBILITY RESEARCH CONFERENCE, L. L. CLARK (ED.), NEW YORK: AMERICAN FOUNDATION FOR THE BLIND, 1965.

TOUCH, HEAT AND PAIN, CIBA FOUNDATION SYMPOSIUM, A.V.S. DE REUCK (ED.), BOSTON: LITTLE, BROWN, 1966.

VIRGINIA CUTANEOUS PROJECT: 1948-1962. NR-140-598, PSYCHOLOGY LABORATORY, UNIVERSITY OF VIRGINIA, FINAL REPORT TO THE OFFICE OF NAVAL RESEARCH.

STIMULATORS, DISPLAY, AND COMMUNICATIONS SYSTEMS

AUSTIN, T. R., AND SLEIGHT, R. B. 'ACCURACY OF TACTUAL DISCRIMINATION OF LETTERS, NUMERALS, AND GEOMETRIC FORMS, JOURNAL OF EXPERIMENTAL PSYCHOLOGY, 43: 239-47 (1952),

AUSTIN, T. R., AND SLEIGHT, R. B. 'FACTORS RELATED TO SPEED AND ACCURACY OF TACTUAL DISCRIMINATION.' JOURNAL OF EXPERIMENTAL PSYCHOLOGY, 44: 283-7 (1952),

- BACH-Y-RITA, PAUL, 'SENSORY PLASTICITY, APPLICATIONS TO A VISUAL SUBSTITUTION SYSTEM,' ACTA NEUROLOGICA SCANDANAVICA, 43: 417-426 (1967).
- BALLARD, J. W., AND HESSINGER, R. W. 'TACTUAL SENSORY CONTROL SYSTEM,' ELECTRICAL MANUFACTURING, 118-121 (OCTOBER, 1954),
- BENNETT, H. S., AND HENNESSY, J. R. THE CHARACTERISTICS OF THE CUTANEOUS COMMUNICATIONS CHANNEL. US ARMY ELECTRONICS COMMAND, FORT MONMOUTH, N.J. PRESENTED AT THE IEEE INTERNATIONAL CONFERENCE OF COMMUNICATION, MINNEAPOLIS, MINN., JUNE, 1967,
- BICE, R. C. 'ELECTROMECHANICAL TRANSDUCER FOR VIBROTACTILE STIMULATION,': 856-7 (APRIL, 1961).
- BISHOP, G. H. 'RESPONSES TO ELECTRICAL STIMULATION OF SINGLE SENSORY UNITS OF SKIN,' JOURNAL OF NEUROPHYSIOLOGY, 6: 362-82 (1943).
- BLISS, J. C. COMMUNICATION VIA THE KINESTHETIC AND TACTILE SENSES. PH.D. THESIS, DEPARTMENT OF ELECTRICAL ENGINEERING, MIT (1961),
- BLISS, J. C. 'KINESTHETIC-TACTILE COMMUNICATIONS,' IRE TRANSACTIONS OF THE PROFESSIONAL GROUP ON INFORMATION THEORY, IT-8(2): 92-9 (FEBRUARY, 1962).
- BLISS, J. C. 'OPTICAL-TO-TACTILE IMAGE CONVERSION AIDS FOR THE BLIND,' REPRINT ARCHIVES OF PHYSICAL MEDICINE AND REHABILITATION, VOL, 48 (1967),
- BLISS, J. C., AND CRANE, H. D. 'A COMPUTER-AIDED INSTRUMENTATION SYSTEM FOR STUDIES IN TACTILE PERCEPTION, NATIONAL AEROSPACE ELECTRONICS CONFERENCE PROCEEDINGS, DAYTON, OHIO, 1964, PP. 375-84,
- BRINDLEY, G. S., AND LEWIN, W. S. 'THE SENSATION PRODUCED BY ELECTRICAL STIMULATION OF THE VISUAL CORTEX,' JOURNAL OF PHYSIOLOGY, 196(2): 479-94 (MAY, 1968).
- BROWN, R.L., NIBARGER, G.O., AND SOLOMIN, A., 'DIFFERENTIAL COMPARISON OF TWO TYPES OF ELECTROPULSE ALPHABETS BASED ON LOCUS OF STIMULATION,' PERCEPTUAL AND MOTOR SKILLS, 24: 1039-1044 (1967),
- BRYCE, J. W., AND WHEELER, J. N. 'READING APPARATUS' (IBM BRAILLE BELT READER). U.S. PATENT NO. 2,521,338: SEPTEMBER 5, 1950,

CRANE, G. W., 'THE TACTUAL QUALITIES OF SPOKEN VOWELS AND DIPHTHONGS,' JOURNAL OF ABNORMAL AND SOCIAL PSYCHOLOGY, 22: 473-9 (1925).

CUTANEOUS COMMUNICATION STAFF, CENTURY RESEARCH CORPORATION, 4113 LEE HIGHWAY, ARLINGTON, VIRGINIA, 22207 (MAY, 1968).

DINNERSTEIN, A. J., AND BLITZ, BERNARD, 'PERCEPTUAL DELAYS AND SPEED OF READING AND TAPPING,' PERCEPTUAL AND MOTOR SKILLS, 19: 867-73 (1964),

DINNERSTEIN, A. J., AND WOLFE, M., 'TACTILE SLIT SCANNING OF LETTERS,' PERCEPTUAL AND MOTOR SKILLS, 1: 135-8 (1962),

ELLIS, K., 'SOME EXPERIMENTS ON READING AIDS FOR THE BLIND,' J. BRIT. I.R.E., PP. 188-190 (FEB. 1963),

FENTON, R. E., 'AN IMPROVED MAN-MACHINE INTERFACE FOR THE DRIVER-VEHICLE SYSTEM,' IEEE TRANSACTIONS ON HUMAN FACTORS IN ELECTRONICS, HFE-7(4): 150-57 (1966),

FISCHL, M. A., SIEGEL, A. I., AND MACPHERSON, D. H., STUDIES INTO INFORMATION PRESENTATION THROUGH NOVEL METHODS: 111, TWO-WAY INFORMATION TRANSFER THROUGH ELECTRO CUTANEOUS TRANSDUCTION, PREPARED BY ALLIED PSYCHOLOGICAL SERVICES SCIENCE CENTER, WAYNE, PA., FOR THE U.S. ARMY ELECTRONICS COMMAND, FORT MONMOUTH, N.J., PHASE 10 REPORT,

FOULKE, E., 'COMMUNICATION BY ELECTRICAL STIMULATION OF THE SKIN,' FINAL PROGRESS REPORT NOV. 1962 - MARCH 1965, DEPARTMENT OF PSYCHOLOGY, UNIVERSITY OF LOUISVILLE, LOUISVILLE, KENTUCKY,

FOULKE, EMERSON, 'THE LOCUS DIMENSION AS A BASIS FOR ELECTRO CUTANEOUS COMMUNICATION,' JOURNAL OF PSYCHOLOGY, 57: 253-7 (1964).

FOULKE, EMERSON, 'TRANSFER OF A COMPLEX PERCEPTUAL SKILL,' PERCEPTUAL AND MOTOR SKILLS, 18: 733-40 (1964).

FRANK, L. K., 'TACTILE COMMUNICATION,' GENETIC PSYCHOLOGY MONOGRAPHS, LVI: 209-55 (1957).

GAULT, R. H., 'A PARTIAL ANALYSIS OF THE EFFECTS OF TACTUAL-VISUAL STIMULATION BY SPOKEN LANGUAGE,' JOURNAL OF THE FRANKLIN INSTITUTE, 209(4): 437-58 (APRIL, 1930),

GAULT, R. H., 'AN INTERPRETATION OF VIBRO-TACTILE PHENOMENA,' JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, 5: 252-4 (1934),

- GAULT, R. H. 'ON THE IDENTIFICATION OF CERTAIN SPOKEN WORDS BY THEIR TACTUAL QUALITIES,' JOURNAL OF APPLIED PSYCHOLOGY, 10: 75-88 (1926).
- GAULT, R. H. 'ON THE EFFECT OF SIMULTANEOUS TACTUAL-VISUAL STIMULATION IN RELATION TO THE INTERPRETATION OF SPEECH,' JOURNAL OF ABNORMAL AND SOCIAL PSYCHOLOGY, 24: 498-517 (1950).
- GAULT, R. H. 'ON THE IDENTIFICATION OF CERTAIN VOWEL AND CONSONANTAL ELEMENTS IN WORDS BY THEIR TACTUAL QUALITIES AND BY THEIR VISUAL QUALITIES AS SEEN BY THE LIP-READER,' JOURNAL OF ABNORMAL AND SOCIAL PSYCHOLOGY, 22: 498-517 (1927).
- GAULT, R. H., AND CRANE, G. W. 'TACTUAL PATTERNS FROM CERTAIN VOWEL QUALITIES INSTRUMENTALLY COMMUNICATED FROM A SPEAKER TO A SUBJECT'S FINGERS,' JOURNAL OF GENERAL PSYCHOLOGY, 1: 353-9 (1958).
- GAULT, R. H., AND GOODFELLOW, L. D. 'AN EMPIRICAL COMPARISON OF AUDITION, VISION, AND TOUCH IN THE DISCRIMINATION OF TEMPORAL PATTERNS AND ABILITY TO REPRODUCE THEM,' JOURNAL OF GENERAL PSYCHOLOGY, 18: 41-7 (1938).
- GELDARD, F. A. 'ADVENTURES IN TACTILE LITERACY,' AMERICAN PSYCHOLOGIST 12: 115-24 (1957).
- GELDARD, F. A. 'SOME NEGLECTED POSSIBILITIES OF COMMUNICATION,' SCIENCE 131(3413): 1583-88 (1960).
- GILMER, B.V.H., 'PROBLEMS IN CUTANEOUS COMMUNICATION FROM PSYCHOPHYSICS TO INFORMATION PROCESSING,' STATE OF THE ART REPORT. NEW YORK: AMERICAN FOUNDATION FOR THE BLIND, 1966.
- GILMER, B. V. H., AND GREGG, L. W. 'THE SKIN AS A CHANNEL OF COMMUNICATION,' DEPARTMENT OF PSYCHOLOGY, CARNEGIE INSTITUTE OF TECHNOLOGY, VOL. XVIII, NO. 2, A REVIEW OF GENERAL SEMANTICS (JULY, 1961).
- GOLLIN, E. S. 'TACTUAL FORM DISCRIMINATION, A DEVELOPMENTAL COMPARISON UNDER CONDITIONS OF SPATIAL INTERFERENCE,' JOURNAL OF EXPERIMENTAL PSYCHOLOGY, 60(2): 126-9 (AUGUST, 1960).
- GOLLIN, E. S. 'TACTUAL FORM DISCRIMINATION: DEVELOPMENTAL DIFFERENCES IN THE EFFECTS OF TRAINING UNDER CONDITIONS OF SPATIAL INTERFERENCE,' JOURNAL OF PSYCHOLOGY, 51: 131-40 (1961).

- GOODFELLOW, L. D, 'REARRANGING SPEECH SPECTRA FOR TACTILE RECOGNITION,' PROGRAM OF THE FIFTEENTH MEETING OF THE ACOUSTICAL SOCIETY OF AMERICA, VOL. 8 (1936).
- GUELKE, R. W., AND HUYSEN, R. M. J, 'DEVELOPMENT OF APPARATUS FOR THE ANALYSIS OF SOUND BY THE SENSE OF TOUCH,' JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, 31(6): 799-809 (1959),
- HENNESSY, J. R, 'CUTANEOUS SENSITIVITY COMMUNICATIONS,' HUMAN FACTORS, 8 : 463-9 (OCTOBER, 1966),
- HILL, J. W. THE PERCEPTION OF MULTIPLE TACTILE STIMULI, PH.D. THESIS, STANFORD UNIVERSITY, STANFORD, CALIFORNIA (1967),
- HILL, J.W. AND BLISS, J.C., 'MODELING A TACTILE SENSORY REGISTER,' PERCEPTION AND PSYCHOPHYSICS, 4(2): 91-101 (1968),
- HILL, J.W. AND BLISS, J.C., 'PERCEPTION OF SEQUENTIALLY PRESENTED TACTILE POINT STIMULI,' PERCEPTION AND PSYCHOPHYSICS, 4(5): 289-295 (1968),
- HIRSCH, JOSEPH, AND KADUSHIN, ISAAC, 'EXPERIMENTS IN TACTILE CONTROL OF FLYING VEHICLES,' THE SIXTH ANNUAL CONFERENCE ON AVIATION AND ASTRONAUTICS, 1964, PP. 64-8.
- HIRSCH, JOSEPH, SHAFER, J. H., AND AILON, EITAN, 'EXPERIMENTS IN TACTILE COMMUNICATION,' THE SIXTH ANNUAL CONFERENCE ON AVIATION AND ASTRONAUTICS, FEBRUARY, 1964.
- HIRSCH, JOSEPH, SHAFER, J. H., KADUSHIN, ISAAC, AND AILON, EITAN, TACTILE COMMUNICATION SYSTEMS FOR AEROSPACE APPLICATIONS, AIAA PAPER NO. 64, JULY, 1964, P. 421,
- LAWRENCE, L. G, 'COMMUNICATIONS VIA TOUCH,' ELECTRONICS WORLD, : 32-5 (MAY, 1968),
- PICKETT, J. M, 'TACTUAL COMMUNICATION OF SPEECH SOUNDS TO THE DEAF: COMPARISON WITH LIPREADING,' JOURNAL OF SPEECH AND HEARING DISORDERS, 28:(NOVEMBER, 1963),
- LEVINE, L. 'FELIX' (SENSORY REPLACEMENT), IX, COMMUNICATION RESEARCH, QPR, CADO, WRIGHT-PATTERSON AFB, DAYTON, OHIO (JULY 15, 1949),
- LINVILL, J. G., AND BLISS, J. C, 'A DIRECT TRANSLATION READING AID FOR THE BLIND,' PROCEEDINGS OF THE IEEE, 54(1): 40-51 (1966),

- LUCAS, R. L., STEWART J. L., AND KRUEL, E. J. 'COMMUNICATION WITHOUT (CONVENTIONAL ELECTRO-MECHANICAL) ACOUSTIC TRANSDUCERS,' AL TDR 64- 243, CONTRACT NO. AF 33(657)-11591, SANTA RITA TECHNOLOGY, INC., MENLO PARK, CAL. (SEPTEMBER 30, 1964).
- MASON, S. J., ET AL. 'SENSORY AIDS RESEARCH,' QUARTERLY PROGRESS REPORTS 1961-1968, MIT RESEARCH LABORATORY OF ELECTRONICS.
- MOORE, THOMAS J., 'VIBRATORY STIMULATION OF THE SKIN BY ELECTROSTATIC FIELDS EFFECTS OF SIZE OF ELECTRODE AND SITE OF STIMULATION THRESHOLDS,' AMERICAN JOURNAL OF PSYCHOLOGY, 81(2): 235-240 (1968).
- NEWMAN, RICHARD. THE FEASIBILITY OF SPEECH TRANSMISSION USING THE SKIN AS A SENSOR, AIR RESEARCH AND DEVELOPMENT COMMAND SEVENTH ANNUAL SCIENCE AND ENGINEERING SYMPOSIUM, BOSTON, MASS., NOVEMBER, 1960.
- PICKETT, J.M., 'TACTUAL COMMUNICATION OF SPEECH SOUNDS TO THE DEAF: COMPARISON WITH LIPREADING,' JOURNAL OF SPEECH AND HEARING DISORDERS, 28(4) (NOVEMBER, 1963).
- PICKETT, J. M., AND PICKETT, B. H. 'COMMUNICATION OF SPEECH SOUNDS BY A TACTUAL VOCODER,' JOURNAL OF SPEECH AND HEARING RESEARCH, 6(3): (SEPTEMBER, 1963).
- REESE, E. P., ROBINSON, H. B., STEVENSON, J. G., AND VOLKMAN, J. RELATIVE EFFECTIVENESS OF PRESENTING INFORMATION TO SELECTED SENSE MODALITIES, TECHNICAL REPORT. NAVTRADEVCEEN 512-1, UNDER CONTRACT N61339-512. PSYCHOPHYSICS RESEARCH UNIT, MT. HOLYOKE COLLEGE (JUNE, 1960).
- SASLOW, LESTER. TACTILE COMMUNICATION WITH AIR JETS. REPORT NO. 8768-1, 8649-1, DEPARTMENT OF MECHANICAL ENGINEERING, MIT (MARCH 30, 1962).
- SEELEY, H. F., AND BLISS, J. C. 'COMPENSATORY TRACKING WITH VISUAL AND TACTILE DISPLAYS,' IEEE TRANSACTIONS ON HUMAN FACTORS IN ELECTRONICS, HFE-7(2): 84-90 (JUNE, 1966).
- SHERRICK, E. E. 'SIMPLE ELECTROMECHANICAL VIBRATION TRANSDUCER,' REVIEW OF SCIENTIFIC INSTRUMENTS, 36: 1893-94 (1965).
- SIEGEL, A. I. 2C. EXPERIMENTS IN ELECTRO CUTANEOUS INFORMATION TRANSFER. FFNO 703, NASA N66-16529 (OCTOBER, 1965).

SIEGEL, A. I., ET AL. STUDIES INTO INFORMATION PRESENTATION THROUGH NOVEL METHODS: II, DESIGN FOR A SOLDIER-CARRIED ELECTRO CUTANEOUS RECEPTION APPARATUS. APPLIED PSYCHOLOGICAL SERVICES, PHASE 9 REPORT, CONTRACT NO. DA 28-043 AMC-00186(E), PREPARED FOR THE US ARMY ELECTRONICS COMMAND, FORT MONMOUTH, N.J. 1966.

STEVENSON, W. H., ET AL. 'PERCEPTION AND INTERPRETATION OF DYNAMIC TACTILE STIMULATION,' IEEE TRANSACTIONS ON AEROSPACE, AS-1(2): 1127-36 (1963).

'TACTILE TELEPHONE TESTED IN ISRAEL,' ELECTRONIC DESIGN, 1: 27 (NOVEMBER 22, 1963).

TOUCHING SCENE,' ELECTRONICS, 1: 44-5 (JULY, 1967).

TROXEL, D. E. 'EXPERIMENTS IN TACTILE AND VISUAL READING,' IEEE TRANSACTIONS ON HUMAN FACTORS IN ELECTRONICS, HFE-8(4): 261-3 (1967).

WISSENBERGER, S., AND SHERIDAN, T. B. 'DYNAMICS OF HUMAN OPERATOR CONTROL SYSTEMS USING TACTILE FEEDBACK,' JOURNAL OF BASIC ENGINEERING, 1: 297-30 (1962).

WIESNER, J. B., AND DOLANSKY, L. 'FELIX' (SENSORY REPLACEMENT), VIII. COMMUNICATIONS RESEARCH, QPR, P. 50, CADO, WRIGHT PATTERSON AFB, DAYTON, OHIO (APRIL 15, 1951).

WIESNER, J. B., AND LEVINE, L. 'FELIX' (SENSORY REPLACEMENT), IX. COMMUNICATIONS RESEARCH, CADO, WRIGHT-PATTERSON AFB, DAYTON, OHIO, QPR, PP. 54-5 (OCTOBER 15, 1949).

WIESNER, J. B., LEVINE, L. AND STRAUS, O. 'FELIX' (SENSORY REPLACEMENT), VII. COMMUNICATIONS RESEARCH, QPR, CADO, WRIGHT-PATTERSON AFB, DAYTON, OHIO (APRIL 15, 1950).

WIESNER, J., WIENER, N., AND LEVINE, L. 'SOME PROBLEMS IN SENSORY PROSYNTHESIS,' SCIENCE, 110: 512 (1949).

BASIC PHYSIOLOGY

- ADKINS, R. J., MORSE, R. W., AND TOWE, A. L. 'CONTROL OF SOMATOSENSORY INPUT BY CEREBRAL CORTEX,' SCIENCE, 153(3739): 1020-22 (1966).
- ADRIAN, E. D., MCKEEN, CATTELL, AND HOAGLAND, H. 'SENSORY DISCHARGES IN SINGLE CUTANEOUS NERVE FIBRES,' JOURNAL OF PHYSIOLOGY, 72: 377-91 (1931).
- ALLEN, F., AND HOLLENBERG, A. 'ON THE TACTILE SENSORY REFLEX,' QUARTERLY JOURNAL OF EXPERIMENTAL PHYSIOLOGY, 14: 351 (1924).
- ALLEN, F., AND WEINBERG, M. 'THE TACTILE SENSORY REFLEX,' QUARTERLY JOURNAL OF EXPERIMENTAL PHYSIOLOGY, 15: 377-83 (1925).
- ALLISON, T. 'RECOVERY FUNCTIONS OF SOMATOSENSORY EVOKED RESPONSES IN MAN,' ELECTROENCEPHALOGRAPHY AND CLINICAL NEUROPHYSIOLOGY, 14: 331-43 (1962).
- CATTELL, M., AND HOAGLAND, J. 'RESPONSE OF TACTILE RECEPTORS TO INTERMITTENT STIMULATION,' JOURNAL OF PHYSIOLOGY, 72: 392-404 (1931).
- CAUNA, N., AND ROSS, L. L. 'THE FINE STRUCTURE OF MEISSNER'S TOUCH CORPUSCLES OF HUMAN FINGERS,' JOURNAL OF BIOPHYSICAL AND BIOCHEMICAL CYTOLOGY, 8: (1960).
- CRITCHLEY, MACDONALD, 'THE PHENOMENON OF TACTILE INATTENTION WITH SPECIAL REFERENCE TO PARIETAL LESIONS,' BRAIN, 72:538-561 (1959).
- DAWSON, G.D., AND SCOTT, J.W., 'THE RECORDING OF NERVE ACTION POTENTIALS THROUGH THE SKIN IN MAN,' JOURNAL OF NEUROLOGY, NEUROSURGERY, AND PSYCHIATRY, 12: 259 (1949).
- FRUHSTORFER, H. INFLUENCE OF FREQUENCY, NUMBER, AND LOCUS OF STIMULI ON THE INTENSITY DEPENDENCE OF VIBRATORY EVOKED CORTICAL RESPONSE IN MAN. NASA TT F-11, 193, AUGUST, 1967, INAUGURAL DISSERTATION FOR DOCTORATE, FRIEDRICH-ALEXANDER UNIVERSITY, NURENBERG.
- GORDON, G., AND MANSON, J. R. 'CUTANEOUS RECEPTIVE FIELDS OF SINGLE NERVE CELLS IN THE THALAMUS OF THE CAT,' NATURE, 215: 597-9 (1967).
- HENSEL, HERBERT, AND BOMAN, KURT K. A. 'AFFERENT IMPULSES IN CUTANEOUS SENSORY NERVES IN HUMAN SUBJECTS,' JOURNAL OF NEUROPHYSIOLOGY, 23: 564-78 (SEPTEMBER, 1960).

- HÖGLUND, G., AND LINDBLÖM, U. 'THE DISCHARGE IN SINGLE TOUCH RECEPTORS ELICITED BY DEFINED MECHANICAL STIMULI,' ACTA PHYSIOLOGICA SCANDINAVICA, 52: 108-19 (1961).
- HOLMES, GORDON, '(3) DISORDERS OF SENSATION PRODUCED BY CORTICAL LESIONS,' BRAIN, 50: 413-27 (1927).
- HUNT, C. C. 'ON THE NATURE OF VIBRATION RECEPTORS IN THE HIND LIMB OF THE CAT,' JOURNAL OF PHYSIOLOGY, 155: 175-86 (1961).
- HUNT, C. C., AND MCINTYRE, A. K. 'CHARACTERISTICS OF RESPONSES FROM RECEPTORS FROM THE FLEXOR LONGUS DIGITORUM MUSCLE AND THE ADJOINING INTEROSSEOUS REGION OF THE CAT,' JOURNAL OF PHYSIOLOGY, 153: 74-87 (1960).
- HUNT, C. C., AND MCINTYRE, A. K. 'PROPERTIES OF CUTANEOUS TOUCH RECEPTORS IN THE CAT,' JOURNAL OF PHYSIOLOGY, 153: 88-98 (1960).
- HYVARINEN, JUHANI, ET AL., 'NEURONAL CODING OF CORTICAL CELLS OF THE FREQUENCY OF OSCILLATING PERIPHERAL STIMULI,' SCIENCE, 162: 1130-1132 (1968).
- IGGC, A. 'NEW SPECIFIC SENSORY STRUCTURES IN HAIRY SKIN,' ACTA NEUROVEGETATIVA, 24: 175-80 (1963).
- KEIDEL, W. D. 'MESSUNG DER HAUTWELLENGESCHWINDIGKEITEN BEI VIBRATIONSREIZEN AM MENSCHEN,' PFLUGERS ARCHIV, 255: 213-27 (1952).
- LELE, P. P., WEDDELL, G., AND WILLIAMS, C. M. 'THE RELATIONSHIP BETWEEN HEAT TRANSFER, SKIN TEMPERATURE, AND CUTANEOUS SENSIBILITY,' JOURNAL OF PHYSIOLOGY, 126: 206-34 (1954).
- LIBET, B., ET AL. 'RESPONSES OF HUMAN SOMATOSENSORY CORTEX TO STIMULI BELOW THRESHOLD FOR CONSCIOUS SENSATION,' SCIENCE, 158: 1597-600 (1967).
- LINDBLÖM, U. 'PROPERTIES OF TOUCH RECEPTORS IN DISTAL GLABROUS SKIN OF THE MONKEY,' JOURNAL OF NEUROPHYSIOLOGY, 28: 966-85 (SEPTEMBER, 1965).
- LINDBLÖM, U. 'PHASIC AND STATIC EXCITABILITY OF TOUCH RECEPTORS IN TOAD SKIN,' ACTA PHYSIOLOGICA SCANDINAVICA, 59: 410-23 (1963).
- LINDBLÖM, U. 'THE RELATION BETWEEN STIMULUS AND DISCHARGE IN A RAPIDLY ADAPTING TOUCH RECEPTOR,' ACTA PHYSIOLOGICA SCANDINAVICA, 56: 349-61 (1962).

- LINDBLOM, U., AND LUND, L. 'THE DISCHARGE FROM VIBRATION-SENSITIVE RECEPTORS IN THE MONKEY FOOT,' EXPERIMENTAL NEUROLOGY, 15: 401-17 (1966).
- LINDBLOM, U., AND TAPPER, D. N. 'TERMINAL PROPERTIES OF A VIBRO-TACTILE SENSOR,' EXPERIMENTAL NEUROLOGY, 17: 1-15 (1967).
- LINDBLOM, U., AND TAPPER, D. N. 'INTRODUCTION OF IMPULSE ACTIVITY IN A PERIPHERAL SENSORY UNIT,' EXPERIMENTAL NEUROLOGY, 15: 63-9 (1966).
- LINDBLOM, U. 'EXCITABILITY AND FUNCTIONAL ORGANIZATION WITHIN A PERIPHERAL TACTILE UNIT,' ACTA PHYSIOLOGICA SCANDINAVICA, 44 (SUPP. 153): 1-66 (1958).
- LOEWENSTEIN, W. R. 'MECHANORECEPTORS,' MCGRAW-HILL YEARBOOK OF SCIENCE AND TECHNOLOGY. NEW YORK: MCGRAW-HILL, 1962, PP. 308-10.
- MANN, S. J. 'TYLOTRICH (HAIR) FOLLICLE' ASSOCIATION WITH A SLOWLY ADAPTING TACTILE RECEPTOR IN THE CAT,' SCIENCE, 147: 1043-45 (FEBRUARY 26, 1965).
- MELZACK, R., WALL, P. D., AND WEISZ, A. Z. 'MASKING AND METACONTRAST PHENOMENA IN THE SKIN SENSORY SYSTEM,' EXPERIMENTAL NEUROLOGY, 8(1): 35-46 (JULY, 1963).
- MOUNTCASTLE, V. B., TALBOT, W. H., DARIAN-SMITH, I., AND KORNHUBER, H. H. 'NEURAL BASIS OF THE SENSE OF FLUTTER-VIBRATION,' SCIENCE, 155(3762): 597-600 (1967).
- NAFE, J. P., AND KENSHALO, D. R. 'STIMULATION AND NEURAL RESPONSE,' AMERICAN JOURNAL OF PSYCHOLOGY, 71:(1958).
- ROSE, JERZY, AND MOUNTCASTLE, V. B. 'TOUCH AND KINESTHESIS,' HANDBOOK OF PHYSIOLOGY-NEUROPHYSIOLOGY, 1(17): 387-429 (1959).
- SATO, M. 'RESPONSE OF PACINIAN CORPUSCLES TO SINUSOIDAL VIBRATION,' JOURNAL OF PHYSIOLOGY, 159: 391-409 (1961).
- SEARS, T. A. 'ACTION POTENTIALS EVOKED IN DIGITAL NERVES BY STIMULATION OF MECHANORECEPTORS IN THE HUMAN FINGER,' PROCEEDINGS OF THE PHYSIOLOGICAL SOCIETY, PP. 30P-31P (MAY 23, 1959).
- TALBOT, W.H., DARIAN-SMITH, I., ET AL., 'THE SENSE OF FLUTTER-VIBRATION; COMPARISON OF THE HUMAN CAPACITY WITH RESPONSE PATTERNS OF MECHANORECEPTIVE AFFERENTS FROM THE MONKEY HAND,' JOURNAL OF NEUROPHYSIOLOGY, 31(2): 301- 334 (1968).

- TAPPER, D. N. 'INPUT-OUTPUT RELATIONSHIPS OF A SKIN TACTILE SENSORY UNIT OF THE CAT,' TRANSACTIONS OF THE NEW YORK ACADEMY OF SCIENCES, (1964),
- TAPPER, D. N. 'CUTANEOUS SLOWLY ADAPTING MECHANORECEPTORS IN THE CAT,' SCIENCE, 143(3601): 53-4 (JANUARY 3, 1964),
- TAPPER, D. N. 'STIMULUS-RESPONSE RELATIONSHIPS IN THE CUTANEOUS SLOWLY-ADAPTING MECHANORECEPTOR IN THE HAIRY SKIN OF THE CAT,' EXPERIMENTAL NEUROLOGY, 13: 364-85 (DECEMBER, 1965),
- TOWE, A. L., AND AMASSIAN, V. E. 'PATTERNS OF ACTIVITY IN SINGLE CORTICAL UNITS FOLLOWING STIMULATION OF THE DIGITS IN MONKEYS,' JOURNAL OF NEURO- PHYSIOLOGY, 21: 292-311 (1958),
- UTTAL, W. R. 'A COMPARISON OF NEURAL AND PSYCHOPHYSICAL RESPONSES IN THE SOMESTHETIC SYSTEM,' JOURNAL OF COMPARATIVE AND PHYSIOLOGICAL PSYCHOLOGY, 52:(1959),
- UTTAL, W. R. 'DO COMPOUND EVOKED POTENTIALS REFLECT PSYCHOLOGICAL CODES?' PSYCHOLOGICAL BULLETIN, 64(6): 377-92 (DECEMBER, 1965),
- UTTAL, W. R. 'INHIBITORY INTERACTION OF RESPONSES TO ELECTRICAL STIMULI IN THE FINGERS,' JOURNAL OF COMPARATIVE AND PHYSIOLOGICAL PSYCHOLOGY, 53(1):(1960),
- UTTAL, W. R. 'OSCILLATION IN THE AMPLITUDE OF HUMAN PERIPHERAL NERVE ACTION POTENTIALS DURING REPETITIVE STIMULATION,' KYBERNETIK, 3(1): 24-7 (JANUARY, 1966),
- UTTAL, W. R., AND COOK, LOUELLA, 'SYSTEMATICS OF THE EVOKED SOMATOSENSORY CORTICAL POTENTIAL: A PSYCHOPHYSICAL-ELECTROPHYSIOLOGICAL COMPARISON,' ANNALS OF THE NEW YORK ACADEMY OF SCIENCES, 112(ART. 1): 60-80 (1964),
- UTTAL, W. R. AND KRISOFF, MADELO, 'EFFECT OF STIMULUS PATTERN ON TEMPORAL ACUITY IN THE SOMATOSENSORY SYSTEM,' JOURNAL OF EXPERIMENTAL PSYCHOLOGY, 71(6): 878-83 (1966),
- WALL, P. E. 'CORD CELLS RESPONDING TO TOUCH, DAMAGE, AND TEMPERATURE OF SKIN,' JOURNAL OF NEUROPHYSIOLOGY, 23: 197-210 (1960),
- WALL, P. D. 'THE ORIGIN OF A SPINAL-CORD SLOW POTENTIAL,' JOURNAL OF PHYSIOLOGY, 164: 508-26 (1962),

- WALL, P. D., AND MELZACK, R. 'NEURAL MECHANISMS WHICH DISCRIMINATE EVENTS ON THE SKIN,' IRE TRANSACTIONS OF THE PROFESSIONAL GROUP ON INFORMATION THEORY, VOL. IT-8, NO. 2 (FEBRUARY, 1962).
- WALL, P. D. 'REPETITIVE DISCHARGE OF NEURONS,' JOURNAL OF NEUROPHYSIOLOGY, 22: 305-20 (1959).
- WALL, P. D., AND CRONLY-DILLON, J. R. 'PAIN, ITCH, AND VIBRATION,' AMA ARCHIVES OF NEUROLOGY, 2: 365-75 (APRIL, 1960).
- WALL, P. D. AND TAUB, ARTHUR. 'FOUR ASPECTS OF TRIGEMINAL NUCLEUS AND A PARADOX,' JOURNAL OF NEUROPHYSIOLOGY, 25: 110-26 (1962).
- WEDDELL, C. H., AND CUMMINGS, S. B., JR. 'FATIGUE OF THE VIBRATORY SENSE,' JOURNAL OF EXPERIMENTAL PSYCHOLOGY, 22: 5 (MAY, 1938).
- WEDDELL, G., PALMER, E., AND PALLIE, W. 'NERVE ENDINGS IN MAMMALIAN SKIN,' BIOLOGICAL REVIEWS, 30(2): 159-95 (1954).
- WEDDELL, G., PALLIE, W. AND PALMER, ELISABETH. 'THE MORPHOLOGY OF PERIPHERAL NERVE TERMINATIONS IN THE SKIN,' QUARTERLY JOURNAL OF MICROSCOPIC SCIENCE, 95(PART 4): 483-501 (DECEMBER, 1954).
- WERNER, G., AND MOUNTCASTLE, V. B. 'THE VARIABILITY OF CENTRAL NEURAL ACTIVITY IN A SENSORY SYSTEM, AND ITS IMPLICATIONS FOR THE CENTRAL REFLECTION OF SENSORY EVENTS,' JOURNAL OF NEUROPHYSIOLOGY, 26: 958-77 (1965).
- WINKELMANN, R. K. 'CUTANEOUS SENSORY END ORGANS OF SOME ANTHROPOID APES,' SCIENCE, 136: 384-86 (MAY 4, 1962).
- WYBURN, G. M. 'CUTANEOUS SENSES,' THE NERVOUS SYSTEM, ACADEMIC PRESS, LONDON, CHAPT. III: 33-66 (1960).

BASIC PSYCHOLOGY

- ALLUISI, EARL A., 'MASKING OF CUTANEOUS SENSATIONS IN MULTIPLE STIMULUS PRESENTATIONS,' PERCEPTUAL AND MOTOR SKILLS, 20: 39-45 (1965).
- ALLUISI, E.A., 'TOWARD OPTIMIZING MAN'S TACTILE COMMUNICATION,' PERCEPTUAL AND MOTOR SKILLS, 12: 235-245 (1961).
- ANDERSON, A. B., AND MUNSON, W. A. 'ELECTRICAL EXCITATION OF NERVES IN THE SKIN AT AUDIOFREQUENCIES,' JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, 23(2): 155-9 (MARCH, 1951).
- ANDREWS, W. A. 'HAPTICAL ILLUSIONS OF MOVEMENT,' AMERICAN JOURNAL OF PSYCHOLOGY, 33: 277-84 (1922).
- BABKIN, V. P., ET AL. 'INVESTIGATION OF VIBRATION SENSITIVITY AND FACTORS AFFECTING IT,' BIOFIZIKA, 6: 61-7 (1961).
- BEKESY, G. V. 'CAN WE FEEL THE NERVOUS DISCHARGES OF THE END ORGANS DURING VIBRATORY STIMULATION OF THE SKIN?' JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, 34(6): 850-56 (JUNE, 1962).
- BEKESY, G. V. 'FUNNELING IN THE NERVOUS SYSTEM AND ITS ROLE IN LOUDNESS AND SENSATION INTENSITY ON THE SKIN,' JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, 30(5): 399-412 (MAY, 1958).
- BEKESY, G. V. 'HUMAN SKIN PERCEPTION OF TRAVELING WAVES SIMILAR TO THOSE ON THE COCHLEA,' JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, 27(5): 830-41 (SEPTEMBER, 1955).
- BEKESY, G. V. 'INTERACTION OF PAIRED SENSORY STIMULI AND CONDUCTION IN PERIPHERAL NERVES,' JOURNAL OF APPLIED PSYCHOLOGY, 18(6): 1276-84 (1963).
- BEKESY, G.V. 'LATERAL INHIBITION OF HEAT SENSATIONS ON THE SKIN,' JOURNAL OF APPLIED PHYSIOLOGY, 17(6) (1962).
- BEKESY, G. V. 'NEURAL FUNNELING ALONG THE SKIN AND BETWEEN THE INNER AND OUTER HAIR CELLS OF THE COCHLEA,' JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, 31(9): 1236-49 (SEPTEMBER, 1959).

- BEKESY, G. V. 'NEURAL INHIBITORY UNITS OF THE EYE AND SKIN, QUANTITATIVE DESCRIPTION OF CONTRAST PHENOMENA,' JOURNAL OF THE OPTICAL SOCIETY OF AMERICA, 50(11): 1060-70 (NOVEMBER, 1960).
- BEKESY, G. V. 'NEURAL VOLLEYS AND THE SIMILARITY BETWEEN SOME SENSATIONS PRODUCED BY TONES AND BY SKIN VIBRATIONS,' JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, 29(10): 1059-69 (OCTOBER, 1957).
- BEKESY, G. V. 'PITCH SENSATION AND ITS RELATIONS TO THE PERIODICITY OF THE STIMULUS. HEARING, AND SKIN VIBRATIONS,' JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, 33(3): 341-8 (MARCH, 1961).
- BEKESY, G. V. 'SENSATIONS ON THE SKIN SIMILAR TO DIRECTIONAL HEARING, BEATS, AND HARMONICS OF THE EAR,' JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, 29(4): 489-501 (APRIL, 1957).
- BEKESY, G. V. 'SIMILARITIES BETWEEN HEARING AND SKIN SENSATIONS,' PSYCHOLOGICAL REVIEW, 66(1): (JANUARY, 1959).
- BEKESY, G. V. 'SYNCHRONY BETWEEN NERVOUS DISCHARGES AND PERIODIC STIMULI IN HEARING AND ON THE SKIN,' ANNALS OF OTOLARYNGOLOGY, RHINOLOGY, AND LARYNGOLOGY, 71(3): 678 (SEPTEMBER, 1962).
- BEKESY, G. V. 'TEMPERATURE COEFFICIENTS OF THE ELECTRICAL THRESHOLDS OF TASTE SENSATIONS,' JOURNAL OF GENETIC PHYSIOLOGY, 49(1, PART 1): 27-35 (1965).
- BELLOWS, R.M. 'AN EXPERIMENTAL ISOLATION OF SOME FACTORS...: I. FREQUENCY, PRESSURE, AND TIME,' JOURNAL OF EXPERIMENTAL PSYCHOLOGY, 19: 716-31 (1936).
- BENDER, M.B., GREEN, M.A., AND FINK, M., 'PATTERNS OF PERCEPTUAL ORGANIZATION WITH SIMULTANEOUS STIMULI,' ARCH. NEURO. J. PSYCHIAT., 72: 233-255 (1954).
- BLISS, J. C., CRANE, H. D., LINK, S. W., AND TOWNSEND, J. T. 'TACTILE PERCEPTION OF SEQUENTIALLY PRESENTED SPATIAL PATTERNS,' PERCEPTION AND PSYCHOPHYSICS, 1: 125-30 (1966).
- BLISS, J. C., CRANE, H. D., MANSFIELD, P. K., AND TOWNSEND, J. T. 'INFORMATION AVAILABLE IN BRIEF TACTILE PRESENTATIONS,' PERCEPTION AND PSYCHOPHYSICS, 1: 273-83 (1966).

- BLITZ, BERNARD, DINNERSTEIN, A. J., LOWENTHAL, MILTON, 'ATTENUATION OF EXPERIMENTAL PAIN BY TACTILE STIMULATION, EFFECT OF VIBRATION AT DIFFERENT LEVELS OF NOXIOUS STIMULUS INTENSITY,' PERCEPTUAL AND MOTOR SKILLS, 19: 311-16 (1964).
- BRAIDA, L. B. D. BILOCAL CUTANEOUS UNMASKING, MASTERS THESIS, DEPARTMENT OF ELECTRICAL ENGINEERING, MIT (1965).
- BROWN, R. L., GALLOWAY, W. D., AND SAN GIULIANO, R. A. 'EFFECTS OF TIME- SHARING AND BODY POSITIONAL DEMANDS ON CUTANEOUS INFORMATION PROCESSING,' PERCEPTUAL AND MOTOR SKILLS, 20(3, PART 2): 1021-26 (JUNE, 1965).
- BROMBERG, WALTER, AND SCHILDER, P. 'ON TACTILE IMAGINATION AND TACTILE AFTER-EFFECTS,' JOURNAL OF NERVOUS AND MENTAL DISEASE, 76(1): 1-24, 133-55 (JULY, 1932).
- CALNE, D. B., AND PALLIS, C. A. 'VIBRATORY SENSE, A CRITICAL REVIEW,' BRAIN, 89(PART IV): 723-46 (1966).
- CARMON, A. 'STIMULUS CONTRAST IN TACTILE RESOLUTION,' PERCEPTION AND PSYCHOPHYSICS, 3(4A): 241-5 (1968).
- CLAUSEN, J., URDAL, ASBJORN, AND GJESVIK, ARNLJOT, 'RELATION BETWEEN GALVANIC SKIN RESISTANCE AND REPETITION EFFECT IN PAIN STIMULATION,' JOURNAL OF GENERAL PSYCHOLOGY, 53: 29-36 (1955).
- COHEN, L. H., AND LINDLEY, S. B. 'STUDIES IN VIBRATORY SENSIBILITY,' AMERICAN JOURNAL OF PSYCHOLOGY, 51: 44-63 (1938).
- COMPTON, R. K., AND YOUNG, P. T. 'A STUDY OF ORGANIC SET: IMMEDIATE REPRODUCTION OF SPATIAL PATTERNS PRESENTED BY SUCCESSIVE POINTS TO DIFFERENT SENSES,' JOURNAL OF EXPERIMENTAL PSYCHOLOGY, 16: 775 (1933).
- CRAIG, F. E. VARIATIONS IN THE ILLUSION OF FILLED AND UNFILLED TACTUAL SPACE. MINOR STUDY FORM. THE PSYCHOLOGICAL LABORATORY OF PRINCETON UNIVERSITY, 1930, PP 112-14.
- CUMMINGS, S. B., JR. 'THE EFFECT OF LOCAL ANESTHESIA ON TACTILE AND VIBRATORY THRESHOLDS,' JOURNAL OF EXPERIMENTAL PSYCHOLOGY, 23(4): 321-38 (OCTOBER, 1938).
- DIESPECKER, D. D. 'VIBROTACTILE LEARNING,' PSYCHONOMIC SCIENCE, 9(2): 107-108 (1967).

- DIESPECKER, D. D., AND DAVENPORT, W. G. 'THE INITIAL EFFECT OF NOISE ON SIMPLE VIBROTACTILE LEARNING TASK,' PERCEPTION AND PSYCHOPHYSICS, 2: 12 (1967).
- DONALDSON, R. W. 'MULTIMODALITY SENSORY COMMUNICATION,' PH.D. THESIS, DEPARTMENT OF ELECTRICAL ENGINEERING, MIT (1965).
- EFRON, ROBERT, 'THE EFFECT OF HANDEDNESS OF THE PERCEPTION OF SIMULTANEITY AND TEMPORAL ORDER,' BRAIN, 86: 261-289 (1963).
- EIJKMAN, E. AND VENDRIK, A. J. H., 'CAN A SENSORY SYSTEM BE SPECIFIED BY ITS INTERNAL NOISE?' JOURNAL OF THE OPTICAL SOCIETY OF AMERICA, 37(6): 1102-1109 (1965).
- EIJKMAN, E., AND VENDRIK, A. J. H., 'DETECTION THEORY APPLIED TO THE ABSOLUTE SENSITIVITY OF SENSORY SYSTEMS,' BIOPHYSICAL JOURNAL, 3(1): 65-78 (1963).
- EIJKMAN, E., AND VENDRIK, A. J. H., 'DYNAMICS OF THE VIBRATION SENSE AT LOW FREQUENCY,' JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, 32(9): 1134-39 (1960).
- ELITHORN, ALICK, PIERCY, M. F., AND CROSSKEY, M. A. 'TACTILE LOCALIZATION,' QUARTERLY JOURNAL OF EXPERIMENTAL PSYCHOLOGY, 5: 171-82 (1953).
- FOULKE, E., 'ELECTRIC SPARK STIMULATION OF THE SKIN,' TECHNICAL REPORT, STAR N66-17120, PERFORMANCE RESEARCH LAB, DEPARTMENT OF PSYCHOLOGY, UNIVERSITY OF LOUISVILLE, LOUISVILLE, KY. (1965).
- FOULKE, E. AND STICHT, T. G., 'THE USE OF LOCATION AND LOCATION-INTENSITY PATTERNS IN ELECTRO CUTANEOUS COMMUNICATION,' NATIONAL AERONAUTICS AND SPACE ADMINISTRATION ANNUAL REPORT, 1 MAY 1965-30 APRIL 1966.
- GELDARD, F. A., AND SHERRICK, C. E. 'MULTIPLE CUTANEOUS STIMULATION THE DISCRIMINATION OF VIBRATORY PATTERNS,' JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, 37(5): 797-801 (MAY, 1965).
- GESCHEIDER, G. A. 'CUTANEOUS SOUND LOCALIZATION,' JOURNAL OF EXPERIMENTAL PSYCHOLOGY, 70(6): 617-25 (1965).
- GESCHEIDER, G. A. 'RESOLVING OF SUCCESSIVE CLICKS BY THE EARS AND SKIN,' JOURNAL OF EXPERIMENTAL PSYCHOLOGY, 71(3): 378-81 (1966).

- GESCHIEDER, G. A., AND NIBLETTE, R. K. 'CROSS-MODALITY MASKING FOR TOUCH AND HEARING,' JOURNAL OF EXPERIMENTAL PSYCHOLOGY, 74(3): 313-20 (1967).
- GHENT, LILA. 'DEVELOPMENTAL CHANGES IN TACTUAL THRESHOLDS ON DOMINANT AND NONDOMINANT SIDES,' JOURNAL OF COMPARATIVE AND PHYSIOLOGICAL PSYCHOLOGY, 54(6): 670-73 (1961).
- GIBSON, J. J. 'OBSERVATIONS ON ACTIVE TOUCH,' PSYCHOLOGICAL REVIEW, 69(6): 477-90 (NOVEMBER, 1962).
- GIBSON, R. H. 'ELECTRICAL STIMULATION OF PAIN AND TOUCH SYSTEMS,' NATURE, 199: 307-308 (1963).
- GILSON, R.D., 'VIBROTACTILE MASKING: EFFECTS OF MULTIPLE MASKERS,' PERCEPTION AND PSYCHOPHYSICS, 5(3): 181-182 (1969).
- GILSON, R.D., 'VIBROTACTILE MASKING: SOME SPATIAL AND TEMPORAL ASPECTS,' PERCEPTION AND PSYCHOPHYSICS, 5(3): 176-180 (1969).
- GOFF, G. D. 'DIFFERENTIAL DISCRIMINATION OF FREQUENCY OF CUTANEOUS MECHANICAL VIBRATION,' JOURNAL OF EXPERIMENTAL PSYCHOLOGY, 74(2, PART 1): 294-9 (1967).
- GOFF, GENEVIEVE, ROSNER, B. S., DETRE, T., AND KENNARD, D. 'VIBRATION PERCEPTION IN NORMAL MAN AND MEDICAL PATIENTS,' JOURNAL OF NEUROLOGY, NEUROSURGERY, AND PSYCHIATRY, 28: 503-509 (1965).
- GOODFELLOW, L. D. 'EXPERIMENTS ON THE SENSES OF TOUCH AND VIBRATION,' JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, 6:(JULY, 1934).
- HAHN, J. F. 'CUTANEOUS VIBRATORY THRESHOLDS FOR SQUARE-WAVE ELECTRICAL PULSES,' SCIENCE, 127(3303): 879-80 (APRIL, 1958).
- HAHN, J. F. 'VIBROTACTILE ADAPTATION AND RECOVERY MEASURED BY TWO METHODS,' JOURNAL OF EXPERIMENTAL PSYCHOLOGY, 71(5): 655-8 (1966).
- HALL, G. S., AND DONALDSON, H. H. 'MOTOR SENSATIONS ON THE SKIN,' MIND, 10:(1885).
- HALNAN, C. R. E., AND WRIGHT, G. H. 'TACTILE LOCALIZATION,' BRAIN, 83 (PART IV): 667-700 (1960).

- HIRSH, I. J., AND SHERRICK, C. E., 'PERCEIVED ORDER IN DIFFERENT SENSE MODALITIES,' JOURNAL OF EXPERIMENTAL PSYCHOLOGY, 62: 423-432 (1961),
- HOLWAY, A. H., AND CROZIER, W. J., 'THE SIGNIFICANCE OF AREA FOR DIFFERENTIAL SENSITIVITY IN SOMESTHETIC PRESSURE,' PSYCHOLOGICAL RECORD, 1(13): 178-84 (1937),
- HULL, C. L., 'THE DISCRIMINATION OF STIMULUS CONFIGURATIONS AND THE HYPOTHESIS OF AFFERENT NEURAL INTERACTION,' PSYCHOLOGICAL REVIEW, 52: 133-42 (1945),
- JACKSON, C. V., AND ZANGWILL, O. L., 'EXPERIMENTAL FINGER DYSPRAXIA,' QUARTERLY JOURNAL OF EXPERIMENTAL PSYCHOLOGY, IV(PART 1):(1952),
- JENKINS, W. L., AND STONE, L. J., 'RECENT RESEARCH IN CUTANEOUS SENSITIVITY: II, TOUCH AND THE NEURAL BASIS OF THE SKIN SENSES,' PSYCHOLOGICAL BULLETIN, 38(2): (FEBRUARY, 1941),
- KOTOVSKY, K., AND BLISS, J. C., 'TACTILE PRESENTATION OF VISUAL INFORMATION,' IEEE TRANSACTIONS ON MILITARY ELECTRONICS, MIL-7 (2 AND 3): 108-13 (1963),
- KROHN, W. O., 'AN EXPERIMENTAL STUDY OF SIMULTANEOUS STIMULATION OF THE SENSE OF TOUCH,' JOURNAL OF NERVOUS AND MENTAL DISEASE, 18: 167-184 (1893),
- LINK, S. W., 'A STOCHASTIC MODEL OF BISENSORY CHOICE REACTIONS,' PH.D. THESIS, DEPT. OF ELECTRICAL ENGINEERING, STANFORD UNIV. (1968),
- MATOYAN, D. S., 'THE EFFECT OF TEMPORAL SUMMATION AND ACCUMULATION IN HUMAN SKIN SENSORY SYSTEM,' BIOFIZIKA, 12 (6) (1967),
- MELZACK, RONALD, AND SCHECTER, BAYLA, 'ITCH AND VIBRATION,' SCIENCE, 147: 1047-48 (FEBRUARY 26, 1965),
- MELZACK, RONALD, AND WALL, P. D., 'PAIN MECHANISMS: A NEW THEORY,' SCIENCE, 150(3699): 971-9 (NOVEMBER 19, 1965),
- MELZACK, RONALD, ET AL., 'CUTANEOUS SENSORY MECHANISMS,' QUARTERLY PROGRESS REPORT NO. 67, MIT RESEARCH LABORATORY OF ELECTRONICS (OCTOBER 15, 1962),
- MOWBRAY, G. H., AND GEBHARD, J. W., 'SENSITIVITY OF THE SKIN TO CHANGES IN RATE OF INTERMITTENT MECHANICAL STIMULI,' SCIENCE, 125(3261): 1297-98 (JUNE, 1957),

- MUKHERJI, K. C. 'EFFECT OF ATTITUDE ON THE PRESSURE OR CONTACT SENSATION,' INDIAN JOURNAL OF PSYCHOLOGY, 13-16: 76-81 (1938-1941).
- NAYLOR, G.F.K., 'PERCEPTUAL SPEED IN RELATION TO QUANTA OF SIMULTANEOUSLY PRESENTED MATERIAL,' AUSTRALIAN JOURNAL OF PSYCHOLOGY, 15(3): 175-186 (1963).
- PICK, A. D. 'IMPROVEMENT OF VISUAL AND TACTUAL FORM DISCRIMINATIONS,' JOURNAL OF EXPERIMENTAL PSYCHOLOGY, 69(4): 331-9 (APRIL, 1965).
- SCHAEFFER, A. A. 'APPARENT MOVEMENT IN A DIFFUSELY STIMULATED TACTILE FIELD,' JOURNAL OF GENERAL PSYCHOLOGY, 20: 91-107 (1939).
- SHERRICK, C. E., JR. 'PHYSICAL DIMENSIONS RELATED TO THE PERCEPTION OF MECHANICAL VIBRATION,' VIRGINIA JOURNAL OF SCIENCE, 4: 280-81 (1953).
- SHERRICK, C. E., JR. 'VARIABLES AFFECTING SENSITIVITY OF THE HUMAN SKIN TO MECHANICAL VIBRATION,' JOURNAL OF EXPERIMENTAL PSYCHOLOGY, 45(5):(MAY, 1953).
- SPECTOR, P., 'CUTANEOUS COMMUNICATIONS SYSTEMS UTILIZING MECHANICAL VIBRATION,' PH.D. THESIS, UNIVERSITY OF VIRGINIA (1954).
- STEVENS, S. S. 'TACTILE VIBRATION: DYNAMICS OF SENSORY INTENSITY,' JOURNAL OF EXPERIMENTAL PSYCHOLOGY, 57(4):(APRIL, 1959).
- STICHT, T. G., AND FOULKE, EMERSON. 'REACTION TIME TO ELECTROCUTANEOUS ONSET AND OFFSET STIMULATION,' PSYCHONOMIC SCIENCE, 4(6): 213-14 (1964).
- STICHT, T. G., AND SITTERLEY, T. E. 'FREQUENCY AND LATENCY OF RESPONSE TO OFFSET-ONSET SEQUENCES OF CUTANEOUS STIMULATION,' PSYCHONOMIC SCIENCE, 3: 425-6 (1965).
- SWINK, J. R. 'INTERSENSORY COMPARISONS OF REACTION TIME USING AN ELECTRO-PULSE TACTILE STIMULUS,' HUMAN FACTORS, 8(2): 143-5 (APRIL, 1966).
- UTTAL, W. R. 'CUTANEOUS SENSITIVITY TO ELECTRICAL PULSE STIMULI,' JOURNAL OF COMPARATIVE AND PHYSIOLOGICAL PSYCHOLOGY, 51: 549-54 (1958).
- VERNON, J. A. 'CUTANEOUS INTERACTION RESULTING FROM SIMULTANEOUS ELECTRICAL AND MECHANICAL VIBRATORY STIMULATION,' JOURNAL OF EXPERIMENTAL PSYCHOLOGY, 45(5):(1953).

- VERRILLO, R. T. 'EFFECT OF CONTACTOR AREA ON THE VIBROTACTILE THRESHOLD,' JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, 35(12): 1962-66 (DECEMBER, 1963).
- VERRILLO, R. T. 'INVESTIGATION OF SOME PARAMETERS OF THE CUTANEOUS THRESHOLD FOR VIBRATION,' JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, 34(11): 1768-73 (NOVEMBER, 1962).
- VERRILLO, R. T. 'TEMPORAL SUMMATION IN VIBROTACTILE SENSITIVITY,' JOURNAL OF THE OPTICAL SOCIETY OF AMERICA, 37(5): 843-6 (MAY, 1965).
- VERRILLO, R. T. 'VIBROTACTILE THRESHOLDS FOR HAIRY SKIN,' JOURNAL OF EXPERIMENTAL PSYCHOLOGY, 72(1): 47-50 (1966).
- WEINSTEIN, SIDNEY, 'TACTILE SENSITIVITY OF THE PHALANGES,' PERCEPTUAL AND MOTOR SKILLS, 14: 391-4 (1962).
- WEINSTEIN, SIDNEY, AND SERSEN, E. A. 'TACTUAL SENSITIVITY AS A FUNCTION OF HANDEDNESS AND LATERALITY,' JOURNAL OF COMPARATIVE AND PHYSIOLOGICAL PSYCHOLOGY, 54(6): 665-9 (1961).
- ZIGLER, M. J. 'THE EXPERIMENTAL RELATION OF THE TWO-POINT LIMEN TO THE ERROR OF LOCALIZATION,' JOURNAL OF GENERAL PSYCHOLOGY, 13: 316 (1935).
- ZIGLER, M. J., AND NORTHUP, K. M. 'THE TACTUAL PERCEPTION OF FORM,' AMERICAN JOURNAL OF PSYCHOLOGY, 37: 391-7 (1926).
- ZUBEK, J. P., FLYE, J., AND AFTANAS, M. 'CUTANEOUS SENSITIVITY AFTER PROLONGED VISUAL DEPRIVATION,' SCIENCE, 144: 1591-93 (JUNE 26, 1964).
- ZUBEK, J. P., FLYE, J., AND WILLOWS, D. 'CHANGES IN CUTANEOUS SENSITIVITY AFTER PROLONGED EXPOSURE TO UNPATTERNED LIGHT,' PSYCHONOMIC SCIENCE, 1: 283-4 (1964).

ELECTRICAL AND MECHANICAL PROPERTIES OF THE SKIN

- ELECTRICAL RESISTANCE OF THE SKIN, TELEDYNE SYSTEMS CORPORATION, 12525 SOUTH DAPHNE AVE., HAWTHORNE, CALIF. NASA N66-31162, NOVEMBER 2, 1964. FFNO 672 (AUGUST, 1965).
- GLASER,, ET AL, 'REFINEMENTS IN THE METHODS FOR THE MEASUREMENT OF THE MECHANICAL PROPERTIES OF UNWOUNDED AND WOUNDED SKIN,' MEDICAL ELECTRONICS & BIOLOGICAL ENGINEERING, 3: 411-19 (1965).
- HILL, J. W. THE PERCEPTION OF MULTIPLE TACTILE STIMULI, PH. D. THESIS, STANFORD UNIVERSITY, STANFORD, CALIFORNIA (1967).
- KINNEN, E. 'ELECTRICAL IMPEDANCE OF HUMAN SKIN,' MEDICAL ELECTRONICS & BIOLOGICAL ENGINEERING, 3: 67-70 (1965).
- LAWLER, J. C., CAPTAIN (USMC); DAVIS, M. J., MAJOR (USMC); AND GRIFFITH, E. C. 'ELECTRICAL CHARACTERISTICS OF THE SKIN,' JOURNAL OF INVESTIGATIVE DERMATOLOGY, 34(5): 301-308 (MAY, 1960).
- PFEIFFER, E.A., 'ELECTRICAL STIMULATION OF SENSEORY NERVES WITH SKIN ELECTRODES FOR RESEARCH, DIAGNOSIS, COMMUNICATION AND BEHAVIORAL CONDITIONING: A SURVEY,' MEDICAL AND BIOLOGICAL ENGINEERING, 6: 637-651 (1968).
- RUSHMER, R. F., BUETTNER, K., SHORT, J. M., AND ODLAND, G. F. 'THE SKIN,' SCIENCE, 154(3747): 343-8 (OCTOBER 21, 1966).
- SHERRICK, C. E. 'THE FREQUENCY RESPONSE CHARACTERISTICS OF THE SKIN AS A MEDIUM FOR VIBIATORY FORCES,' VIRGINIA JOURNAL OF SCIENCE, : 367 (1951).
- STEPHENS, W. G. S. 'THE CURRENT-VOLTAGE RELATIONSHIP IN HUMAN SKIN,' MEDICAL ELECTRONICS & BIOLOGICAL ENGINEERING, 1: 389-99 (1963).

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